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**DETAILED ACTION**

**EXAMINER'S COMMENT**

The support for the applicant's claim amendment to include "leucine" in the Markush group representing the variable 'X' comes from the originally submitted claims 3 and 5 filed 5/20/05, and not from the specification page 11, lines 15-25 as stated in applicant's remarks page 9, paragraph 3 filed 5/5/08.

**EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms. Judith Kim on 8/28/08.

The application has been amended as follows:

Please cancel Claim 6.

Please replace Claim 1 with the following:

1. (Currently amended) A peptide separated from tunicate and comprising amino acid sequence represented by chemical formula I:

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W<sub>1</sub>X<sub>2</sub>B'<sub>3</sub>U<sub>4</sub>X<sub>5</sub>X<sub>6</sub>B<sub>7</sub>B<sub>8</sub>U<sub>9</sub>X<sub>10</sub>B'<sub>11</sub>C<sub>12</sub>U<sub>13</sub>B<sub>14</sub>U<sub>15</sub>X<sub>16</sub>X<sub>17</sub>U<sub>18</sub> (SEQ ID NO: 11) (I)

wherein,

W represents tryptophan;

X, each variable of which X<sub>2</sub>, X<sub>5</sub>, X<sub>6</sub>, X<sub>10</sub>, X<sub>16</sub> and X<sub>17</sub> is individually selected from an amino acid residue selected from the group consisting of tyrosine, valine, isoleucine, leucine, methionine, phenylalanine and tryptophan;

B represents an amino acid residue selected from the group consisting of arginine, lysine and histidine;

B' represents an amino acid residue selected from the group consisting of arginine, lysine and histidine or from a group consisting of asparagine and glutamine;

C is Cysteine;

U represents an amino acid residue selected from the group consisting of glycine, serine, alanine and threonine.

Please replace Claim 4 with the following:

4. (currently amended) The peptide as set forth in claim 1, wherein the peptide comprises amino acid sequence SEQ. ID No: 1.

Please replace Claim 5 with the following:

5. (currently amended) A peptide comprising an amino acid sequence represented by chemical formula II:

U<sub>4</sub>X<sub>5</sub>X<sub>6</sub>B<sub>7</sub>B<sub>8</sub>U<sub>9</sub>X<sub>10</sub>B'<sub>11</sub>C<sub>12</sub>U<sub>13</sub>B<sub>14</sub>U<sub>15</sub>X<sub>16</sub>X<sub>17</sub>U<sub>18</sub> (SEQ ID NO: 13) (II)

wherein,

U represents an amino acid residue selected from a group consisting of glycine, serine, alanine and threonine;

X, each variable of which X<sub>5</sub>, X<sub>6</sub>, X<sub>10</sub>, X<sub>16</sub> and X<sub>17</sub> is individually selected from an amino acid residue selected from the group consisting of tyrosine, valine, isoleucine, leucine, methionine, phenylalanine and tryptophan;

B represents an amino acid residue selected from the group consisting of arginine, lysine and histidine; and

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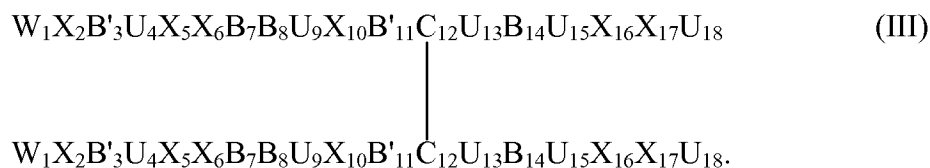
B' represents an amino acid residue selected from the group consisting of arginine, lysine and histidine or from a group consisting of asparagine and glutamine.

Please replace Claim 7 with the following:

7. (Currently amended) The peptide as set forth in claim 5, wherein the peptide comprises an amino acid sequence represented by SEQ ID NO: 15 in which U<sub>4</sub> is alanine, X<sub>5</sub> is leucine, X<sub>6</sub> is leucine, B<sub>7</sub> is histidine, B<sub>8</sub> is histidine, U<sub>9</sub> is glycine, X<sub>10</sub> is leucine, B'<sub>11</sub> is asparagines, C<sub>12</sub> is cysteine, U<sub>13</sub> is alanine, B<sub>14</sub> is lysine, U<sub>15</sub> is glycine, X<sub>16</sub> is valine, X<sub>17</sub> is leucine and U<sub>18</sub> is alanine.

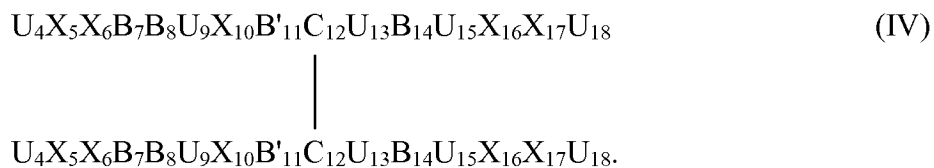
Please replace Claim 8 with the following:

8. (Currently amended) A peptide dimer comprising an amino acid sequence represented by chemical formula III: wherein each peptide of the dimer is represented by chemical formula I (SEQ ID NO: 11) and the peptides are joined at the cysteine site by disulfide bond;



Please replace Claim 9 with the following:

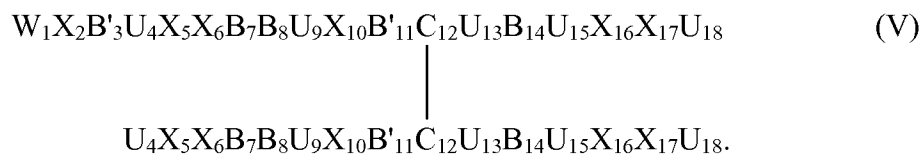
9. (Currently amended) A peptide dimer comprising an amino acid sequence represented by formula IV: wherein each peptide of the dimer is represented by chemical formula II (SEQ ID NO: 13), and the peptides are joined at the cysteine site by disulfide bond;



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Please replace Claim 10 with the following:

10. (Currently amended) A peptide dimer comprising an amino acid sequence represented by formula V: wherein one peptide of the dimer is represented by chemical formula I (SEQ ID NO: 11) and another peptide of the dimer is represented by chemical formula II (SEQ ID NO: 13), and the peptides are joined at the cysteine site by disulfide bond;



Please replace claim 11 with the following:

11. (Currently amended) An antimicrobial agent comprising a peptide comprising the chemical formula I of claim 1 as an active ingredient.

Please replace claim 12 with the following:

12. (Currently amended) An antimicrobial agent comprising a peptide comprising the chemical formula II of claim 5 as an active ingredient.

Please replace claim 13 with the following:

13. (Currently amended) An antimicrobial agent comprising a peptide dimer comprising the chemical formula III of claim 8 as an active ingredient.

Please replace claim 14 with the following:

14. (Currently amended) An antimicrobial agent comprising a peptide dimer comprising the chemical formula IV of claim 9 as an active ingredient.

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Please replace claim 15 with the following:

15. (Currently amended) An antimicrobial agent comprising a peptide dimer comprising the chemical formula V of claim 10 as an active ingredient.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satyanarayana R. Gudibande whose telephone number is 571-272-8146. The examiner can normally be reached on M-F 8-4.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on 571-272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Satyanarayana R Gudibande/  
Examiner, Art Unit 1654

/Andrew D Kosar/  
Primary Examiner, Art Unit 1654